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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/539,004

06/15/2005

Thomas Bierbaum

66489-055-7

9457

25269

7590

03/13/2008

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EXAMINER

SINGH, SUNIL K

ART UNIT

PAPER NUMBER

3732

MAIL DATE

DELIVERY MODE

03/13/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/539,004	Applicant(s) BIERBAUM ET AL.	
	Examiner Sunil K. Singh	Art Unit 3732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 31-36,38-55 and 57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 31-36,38-55 and 57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 December 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is in response to applicant's amendments filed on 12/13/2007.

Claim Objections

1. Claims are objected to because of the following informalities: Please note that claims 1-30 were canceled in paper filed June 15, 2005. However, amendment filed on December 13, 2007 states that claims 1-20 have been canceled. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 31-36,38,39,41,42,44,45,47-55 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Metrikin (US 2002/0142264) in view of Horton et al. (US 6,340,245).

Metrikin discloses a dental handpiece [009] (Figs. 4 and 5) with parts that can be moved relative to each other and that includes: the parts being in mutual surface-contact (Figs. 4 and 5); a lubricant for the lubrication of parts; at least one of the parts having a coating of lubricant (14) on at least part of its surface [0016]; wherein the parts/components can be various types of bearings and motors used in dental handpieces [0009]; it is inherent that the part/components that are moved relative to

each other provide a type of coupling; the lubricant being constituted such that when the parts move, the lubricant is transferred from the part with the coating to the uncoated part (layers of silver have this property); the lubricant (silver) (14) and the opposing surface of the uncoated part being constituted so that the lubricant adheres to the opposing surface of the uncoated part (54) with a strong adhesion force (Clam 8); wherein the lubricant is a solid lubricant [0016]; it is inherent that the lubricating substance on the exposed surface of said coating is greater than on the side adjacent the component to be coated and that the lubricating substance (silver) has a carrier layer attached to the surface of the coated parts; the carrier layer is metallic; the lubricating substance (14) has an embedded component which assume a liquid state during operation (oil) [0016]; wherein the coating comprises one or more sub-layers (16); wherein one or more layers have internal attenuation means [0019]; the thickness of the silver layer (14) will be changed by wear and thus resulting in a change of the electrical resistance; it is common knowledge that the lubrication substance will differ optically from the carrier material and wherein the lubrication substance's optical properties will change with wear; wherein a second non-bonded lubricant (16) is present; wherein the lubricating substance is in the form of a support for the lubricant or lubricants and where the lubricating material is selected where they are compatible with other lubricants of prior art such as oil [0009],[0016-0017]; and where the coating and/or other lubricants are sterilizable [0018],[0019]. However, Metrikin fails to disclose an instrument where the coating comprises a metal-doped, diamond-like (DLC) layer.

Horton et al. teaches an instrument that comprises a metal-doped, diamond-like layer (8) (Column 3, Lines 13-14) in order to provide a coating that offers low friction and high wear resistance (Column 1, Lines 56-69). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Metrikin by having a coating that comprises a metal-doped, diamond-like layer, as taught by Horton et al., in order to provide a coating that offers low friction and high wear resistance.

4. Claims 31, 40, 43 and 46 rejected under 35 U.S.C. 103(a) as being unpatentable over Heshmat (US 6,158,893) in view of Horton et al. (US 6,340,245).

Heshmat discloses a dental handpiece with parts that can be moved relative to each other (14,18) (Column 2, Lines 64-66) that includes: the parts being in mutual surface contact; a lubricant for lubrication of said parts (14,18); at least one of the parts having a coating (15) of lubricant (MoS₂ coating, Column 5, Line 5) on at least part of its surface; the lubricant being constituted so that when parts move, the lubrication is transferred from the coated part (18) to the uncoated part (14) (MoS₂ layers are known for such a property); the lubricant (MoS₂) and the opposing surface of the uncoated part (14) being so constituted that the lubricant adheres to the opposing surface of uncoated part (14) (the properties of MoS₂ allows the lubricant to adhere to a carbide-coated shaft); the lubricant (MoS₂) in the coating (15) is a solid lubricant; the different soft layers (PAI, PTFE, MoS₂) have pressure-resistant and electrically insulating properties; and wherein the coating of MoS₂ lubricant reduces the surface hardness. However,

Heshmat fails to disclose an instrument where the coating comprises a metal-doped, diamond-like (DLC) layer.

Horton et al. teaches an instrument that comprises a metal-doped, diamond-like layer (8) (Column 3, Lines 13-14) in order to provide a coating that offers low friction and high wear resistance (Column 1, Lines 56-69). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Heshmat by having a coating that comprises a metal-doped, diamond-like layer, as taught by Horton et al., in order to provide a coating that offers low friction and high wear resistance.

Response to Arguments

5. Applicant's arguments filed 12/13/2007 have been fully considered but they are not persuasive. The applicant argues that it would not have been obvious to modify Metrikin with the diamond-like-carbon layer taught by Horton. The examiner disagrees. The examiner considers that one of ordinary skill of the art would be able to modify Metrikin's lubrication system with a diamond-like carbon layer. The motivation for combining the references is indicated in the rejection above. Furthermore, the argument regarding the combination of a porous lubricant and a non-porous lubricant are merely opinions and cites no factual evidence; thus, the argument is considered non-persuasive.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sunil K. Singh whose telephone number is (571) 272-3460. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cris L. Rodriguez can be reached on (571) 272-4964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

3/4/2008

/Sunil K Singh/
Examiner
Art Unit 3732

/Cris L. Rodriguez/
Supervisory Patent Examiner, Art Unit 3732